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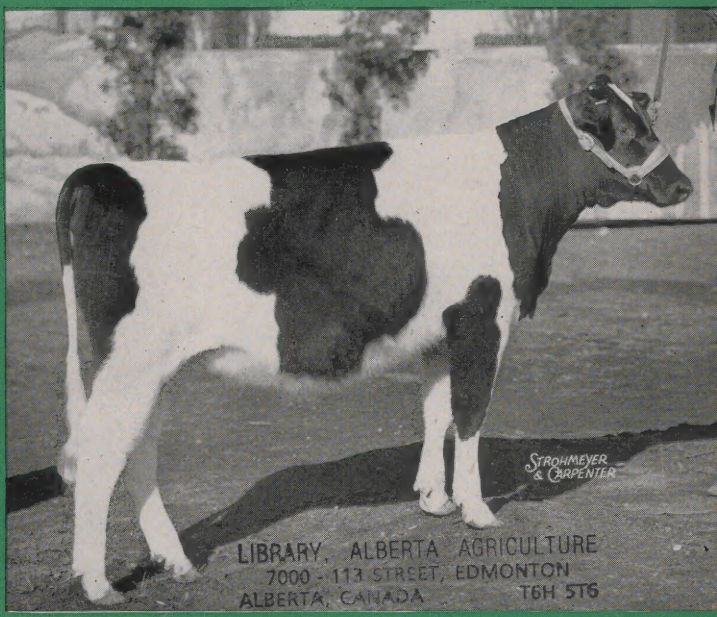
RAISING Dairy Calves



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MOUNTAIN VIEW CORALIE RAG APPLE
All-Canadian Heifer Calf 1946

The result of good Breeding, Feeding and Management

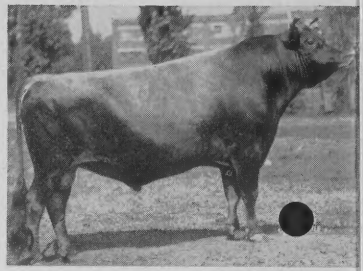
THOMAS L. KLINKHAMER
Dairy Cattle Fieldman

MANITOBA DEPARTMENT OF AGRICULTURE AND IMMIGRATION
WINNIPEG, MANITOBA

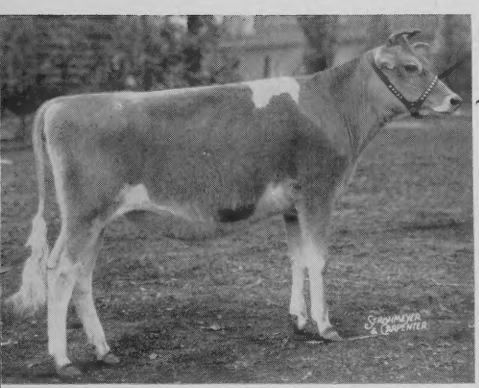
Good Breeding

...PAYS DIVIDENDS

BRAMPTON MEDALLION BASIL 113142



Grand Champion, Royal Winter Fair 1948 and 1949, also at C.N.E. 1949. A son of the superior sire Brampton Basileus. This bull is the kind that transmits type and production to his offspring.



"Just call me 'Miss Fillthepail'. I'm destined to be a World Champion milk producer. My parents, through their ancestors have endowed me with desirable type and the ability to produce large quantities of high test milk. With this breeding, and a kind owner who watches his feeding and management practices, I'm bound to develop into a good type, heavy producing cow."

HALLDALE SPORTS GRETA, ***1st prize senior heifer calf and junior champion at the Royal Winter Fair, Toronto, 1949.***

BRAMPTON BLONDE PRINCESS 180013

1st prize aged cow and Grand Champion, Royal Winter Fair, Toronto, 1949, also at Portland Oregon. A cow with style and character as well as an enviable milk record.

Medallion Basil and Blonde Princess are not the true sire and dam of Sports Greta.

RAISE YOUR OWN REPLACEMENTS

VALUABLE FEED, TIME AND LABOUR are all invested in the calves you save for herd replacements. Remember that today's calves will be tomorrow's milk cows. Only the calves from the better producing cows in your herd should be raised for replacements. In addition, these calves should be sired by a pure bred bull that has the breeding ability to transmit to his offspring the capacity to produce more than their dams. The dairyman who raises his own replacements can keep disease in his herd down to a minimum—animals introduced from outside herds may bring disease with them. When disposing of surplus stock, dairymen do not sell their best animals to others as replacements. If a calf is worth rearing, it is worth rearing well. In order to obtain the maximum returns from dairying, good management in calf raising is essential.

Some of the points relating to calf management have been discussed in this bulletin. It is hoped that these suggestions may be of help to dairy cattle breeders in raising thrifty, well grown calves that will develop into promising heifers and finally into productive milk cows.

SUCCESSFUL CALF RAISING

Successful calf raising begins with the right kind of feeding and care of the pregnant cow. The greatest growth of the unborn calf, with the heaviest demands on the cow, takes place during the last few weeks before birth. Because of this it is well to give the cow a dry period of six to eight weeks, and to feed her liberally during this rest period. During the grazing season good pastures provide all the nutrients, vitamins and minerals needed by the dry cow for health and thrift. During the stable feeding period a high quality hay with silage or roots as well as grain (16% protein, high in minerals) are needed to nourish the unborn calf and to build up the cow for the coming lactation period.

As calving time approaches there are a few simple precautions to observe:

(1) Keep the cow in a reasonably laxative condition. This makes calving easier. Feed mildly laxative feeds the last two weeks before the calf arrives. A mixture comprising 35 parts ground oats, 50 parts wheat bran, 15 parts linseed oil meal, 2 parts mineral (Ca & P) and 1 part iodized salt is suitable.

(2) Provide suitable calving quarters. In summer, cows may best calve outdoors on clean grass. At other seasons, the calving stall should be cleaned, disinfected and freshly bedded. A clean, sanitary box stall helps prevent disease. To force a cow to calve while tied in a stanchion is making calving difficult and harder on the cow, as well as adding unnecessary risk to the life of the new born calf.

(3) Be on hand during the calf's birth. It will pay to watch the cow and calf to see that everything goes well. Should the calf fail to start breathing wipe all mucus off its nose and mouth and apply artificial

respiration. This is done by first pressing and then relaxing on the calf's chest. Use both hands. Do not press too hard and do not work too rapidly. Often, several sharp slaps may be enough to start a calf breathing.

(4) Offer the cow warm water after calving. Do not give her cold water until the after-birth has come away. Also give the cow a warm bran mash for the first feed or two after calving.

Soon After Birth:

"An ounce of prevention..."

(1) The calf's navel should be disinfected with tincture of iodine or other suitable disinfectant to guard against navel infections.

(2) Be sure that the cow licks the calf dry. Occasionally the cow is slow about this. If so, sprinkle a little dry bran on the calf to encourage the cow to lick it. If the cow still does not lick her calf, it should be wiped dry with a sack or cloth. If the barn is cold or if there is any possibility of draughts, it might be wise to blanket the calf to prevent chills and resultant colds.

(3) Be sure that the calf gets a good feed of its mother's milk within an hour or two after birth. A weak calf may need some help. It may be necessary to hold it up to the cow, and if needed, direct a stream of milk into its mouth to assist it in starting to nurse. Calves that are too weak at birth to survive without help often gain strength very quickly and develop into normal, vigorous individuals.

A Calf Needs its Mother's First Milk (Colostrum)—

It is absolutely essential that the calf gets the cow's first milk or colostrum. In the first place this milk acts as a laxative and cleans out the

calf's digestive tract. Colostrum is extremely high in Vitamin A content. This promotes growth and helps to prevent nutritional upsets and scours. It is also high in niacin and mineral matter. It contains about 15% protein. It is readily digestible. In addition, a calf which has been denied colostrum during its first two or three days of birth, does not have the needed resistance to disease and nutritional upsets, consequently such a calf will suffer a permanent handicap.

In short, colostrum has the natural qualities that protect the new born calf against early infections. Thus every dairyman should see to it that his calves get their mother's milk for the first two or three days after birth, regardless of whether the calf suckles or is pail fed.

SUCKLING CALVES

Many dairymen remove the calves from their dams about the second or third day after birth and put them on nurse cows. Often a nurse cow (kept solely for this purpose) can raise as many as four calves at one time, up to three months of age. Although expensive, this method of feeding dairy calves has many merits. By this method of feeding there is no risk of forgetting to feed the calf. The milk is always fresh, clean and of the correct temperature. The calf is able to feed at several intervals during the day; thus it is able to consume larger quantities of milk without overtaxing its digestive system. The labour in calf feeding is cut to a minimum by the suckling system. Calves raised under this natural method seem to do better than pail fed calves. There may be something that the calf acquires from the cow, in addition to a nearly perfect food consumed in the way nature intended.

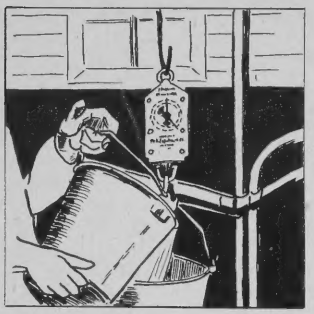
PAIL FEEDING

Some dairymen remove the calf from its mother at birth, claiming that a calf will take to pail feeding faster if it has never suckled. However, most dairymen leave the calf with its mother until the milk is saleable or until the congestion has disappeared from the cow's udder.

When attempting to teach the calf to drink from a pail it is advisable to let it go 12 hours without food so it will be hungry—a hungry calf will suck one's fingers. The calf is then backed into a corner and straddled. The operator can then hold the milk pail with one hand and with two fingers of the other hand in the calf's mouth lower the calf's head into the pail so that its suckling will draw the milk into its mouth. The pail should be at such a height that the head will be level. Stubborn calves are a test to the patience, but if allowed to become hungry they will eventually learn to drink from a pail.

The nipple pail is becoming more popular on many dairy farms. This pail (often used from the time the calf is taken from the cow until they are off milk entirely) forces the calf to drink more slowly. In this way gulping of milk and resulting digestive upsets are avoided.

Feed Milk According to Weight: Regardless of the method of feeding, the newborn calf should receive whole milk for the first three weeks of its life—the critical stage. Whole milk is a MUST for this period.



Eliminate guesswork — weigh milk for calf feeding.

"Feed one pound of milk per day for each ten pounds of body weight" is a good rule to follow. Thus a 90 pound calf would receive 9 pounds of milk daily. This amount may be fed in two feedings per day, but it is preferably fed in three or four feedings. If milk is high in fat (5%) less should be fed. It is well worth the time taken to weigh the amounts fed at each feeding.

Do Not Overfeed: The calf's stomach is very small and there is great danger in overfeeding. At birth the average calf's stomach will not hold more than 5 pounds of milk. Feeding more than this at one time greatly distends the calf's stomach and causes nutritional troubles from which the animal may not recover. Pail-fed calves that are fed only twice daily, develop depraved appetites, and may gorge themselves with more milk than their stomachs can reasonably accommodate. More frequent feedings of small amounts will overcome this difficulty. Many more calves are lost or injured through overfeeding than through underfeeding. It is much safer to keep the calf always a little hungry, rather than to overfeed it.

Digestive stomach of a new-born calf —note size.

Changing From Whole to Skim Milk: After three weeks on whole milk, the diet of the calf may then safely be changed to skim milk. The change to a skim milk diet should be made gradually and take about ten days to accomplish. It is a mistake to suddenly increase the amount of milk fed when changing to skim milk, with the idea that the calf needs a great deal more skim milk than whole milk. This is not true as can be seen from the table. The increase in skim milk should be gradual as the calf grows older, and seldom more than 20 pounds (two gallons)

A COMPARATIVE ANALYSIS OF WHOLE AND SEPARATED SKIM MILK

CONTENT	Whole Milk	Skim Milk
	Per Cent.	Per Cent.
Water	87.25	90.50
Fat	3.8	0.10
Protein	3.5	3.57
Sugar	4.8	4.95
Ash	.65	0.78

daily need be fed even to a large calf at any time. We must remember that in the natural or wild state the milk supply for the young is much less than under our artificial conditions.

Keep Feeding Utensils Sterile: All calf feeding pails must be kept clean and sweet and scalded regularly, or trouble will follow. All milk fed to calves should be fed at blood heat (100°F.). This is important. When the calf is young its digestion is easily upset. Use a thermometer and eliminate guess work. If skim milk has cooled by the time it has gone through the separator warm it up before it is fed. Otherwise scours or other digestive troubles are sure to occur. Imitate nature —feed a quality product and raise healthy calves.

Keep that pail clean.

Skim Milk Supplements: At three weeks, or about the time the change is made from whole to skim milk, grain feeding should commence. Some prefer to mix the supplementary feed with the skim milk for the first two or three weeks. There are a number of commercial calf meals available that will give very satisfactory results; however, home-made calf meals can be prepared; rolled oats or ground flax are often used as a supplement. Flax seed jelly, made by pouring boiling water on flax seed (1 gallon water to 2 pounds flax) makes an excellent supplement. When introducing a skim milk supplement do so gradually. Feed only a tablespoonful or two at first, increasing the amount gradually. After six weeks of age the grain is best fed dry after the milk.

Teaching the Calf to Eat Grain: Most dairymen like to feed the grain separate from the milk from the beginning. If the calf refuses to eat grain, a little may be rubbed on its muzzle or a little may be placed in the bottom of the milk pail after the calf has finished its skim milk. In this way the calf will become accustomed to the taste of grain and soon learn to seek out the feed trough. For the first few days grain should be kept in the trough at all times. Once the calf has commenced eating it should be given only what it will clean up at each meal. Grain should not be left in the trough to sour. At 6 weeks of age about one half pound of grain a day will be eaten; at three months and later, about two pounds per day is ample.

GRAIN RATIONS FOR CALVES ON SKIM MILK

It is better to feed a mixture of two or three grains than one, but a large variety is not necessary. A number of commercial calf meals and calf pellets that are on the market are well balanced rations, but whether or not it is advisable to use them (or make up your ration) will depend upon the price compared with that of your grain. It is not advisable to feed grain mixed with milk. The best plan is to feed grain immediately following the milk, when the saliva is running freely.

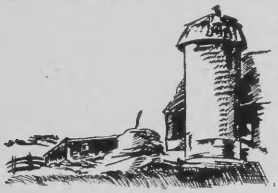
Some suitable grain mixtures are:

(1) Oats 40 lbs., Barley 30 lbs., Bran 15 lbs., Linseed Oil Meal 15 lbs.
(2) Oats 60 lbs., Bran 30 lbs., Linseed Oil Meal 10 lbs.
(3) Oats 50 lbs., Bran 30 lbs., Corn Meal 10 lbs., Linseed Oil Meal 10 lbs.
(4) Oats 40 lbs., Ground Barley 30 lbs., Bran 30 lbs.

Oats are a desirable feed for dairy calves and should be fed whole or coarsely crushed. Calves are born with a good set of grinder teeth and can digest whole oats very well. There is little danger of a calf fed skim milk eating too much grain.

ROUGHAGE FOR CALVES

Calves begin to eat hay as soon as they eat grain. It is advisable to get calves on roughage as soon as possible because development of the calf's rumen does not start until the calf consumes roughage feeds. The calf may eat a handful or two or choice leafy mixed hay when only ten days old. The hay should be of superior quality. Alfalfa hay may be somewhat laxative for very young calves.



Silage is desirable for calves 6 months of age.

Mixed hay or prairie hay is satisfactory at this young age. To keep the hay fresh and tasty it should be replaced daily. Calves will eat more when hay is pleasing to the taste.

WATER AND MINERAL MATTER NECESSARY

Fresh water is essential, especially for calves on a minimum of milk. It should be available at all times. The mineral matter necessary for calves should be incorporated in the grain ration, being 3% thereof. One and a half per cent of the grain ration should be made up of iodized salt and the other 1½% of the ration should be made up of monocalcium phosphate or pulverized bone meal. If calves eat soil or chew on old bones or boards the percentage of monocalcium phosphate or bone meal should be increased in the grain ration. There may be areas in Manitoba where cobalt is lacking in the soil. Cattle in these areas may develop anaemia, an unthrifty condition. If a lack of cobalt has been established, one ounce of cobalt sulphate thoroughly mixed with 100 pounds of salt should be beneficial.

RAISING CALVES WITHOUT MILK

Several calf meals sold under trade names may be used with success. A mixture may also be compounded at home. One which gives good results is made up as follows:

	Lbs.
Wheat Flour	30
Soyabean or Cocoanut Meal	25
Nutrium (soluble skim milk powder)	20
Linseed Oil Meal	10
Dried Blood	2

The calves are given their mother's milk for a week, when the milk substitute gradually replaces the milk, until at two weeks no milk is fed. For the first six weeks the calves should have 1½ to 2 pounds of the mixture per day, added to 1 to 1½ gallons of warm water. At three months of age an ordinary grain ration may take the place of the above mixture.

The results from this method of feeding are not as satisfactory as when milk is used, but with care, good animals can be reared.

FEEDING FOR VEAL

To produce the best veal the new-born calf should be kept in a darkened stall, and receive twice a day all the fresh whole milk it will drink without scouring. About 10 pounds of milk are required for each pound of gain made. At the age of two months the calf should produce the best veal. To obtain the highest grade veal nothing but milk should be fed, with care taken that no bedding is eaten.

PROVIDE DRY, WELL-VENTILATED QUARTERS

To raise thrifty calves, keep them in a clean, light, dry, well-ventilated stall. Damp stalls and wet bedding may lower the calf's resistance and lead to pneumonia or other infections. Growing calves need plenty of fresh air, but drafts should be avoided.

Ventilate, but avoid drafts.

Calf pens clean and dry.

If calves start suckling each other, they should be housed in single stalls, otherwise permanent udder damage may result. Calves up to three weeks of age need very little exercise, but thereafter should be exercised to prevent them from becoming paunchy.

DEHORN CALVES AT AN EARLY AGE

Caustic potash is very satisfactory for dehorning young calves. Caustic potash sticks, ready to use, may be obtained from any drug store. If properly applied, there will be little or no bleeding, especially if the horn buttons are still very small. After a little experience, the dairyman will find it possible to do a neat, clean dehorning job with little discomfort to the animal.

How to Dehorn with Caustic Potash: Plan to dehorn when the calf is four to ten days old, or as soon as the horn buttons can be detected

readily. The earlier the better. Frequently, horn buttons cannot be seen until the hair is clipped.

First remove the hair over the horn button. Use either shears or clippers. Then moisten the "caustic" stick, wrapped in paper to protect the fingers, and rub over the horn button using a circular motion. When the skin softens, start working on the other horn and then come back to the first. When enough caustic has been applied, the skin will have softened so that it can be broken easily with the end of the caustic stick. Be careful not to use too much. It is not necessary to take off the entire horn button at the time of the operation. The caustic will continue to work some time after, destroying the horn tissue. Following operation, apply a ring of vaseline around the horn button. This prevents the caustic from running down the calf's face and getting into the eyes.

When not in use, caustic potash sticks should be kept in a tightly stoppered bottle. Otherwise they draw moisture from the air and become unusable.

In addition to caustic there are also several commercial dehorning pastes on the market that are reputed to do a good job of dehorning.

IT IS IMPORTANT TO IDENTIFY CALVES

For registration of purebreds, calves must be positively identified. The Breed Associations, your Livestock Branch or Fieldman, will furnish registration forms with instructions on request. Marking is also very desirable for grade herds. The dairyman will then be able to identify positively the offspring of his best cows, which should be the most promising future milk producers.

Ear-tagging is a popular method of identification.

Tattooing must be done with care.

Tattooing properly done is permanent and easy to read.

REMOVE UNSIGHTLY "EXTRA" TEATS

Extra teats on the udder of a cow are unsightly and should be removed while the heifer calf is still small and easily handled. The best time to remove is when the calf is four to six weeks old.

A good method is to throw the calf. Apply iodine around the teat to be removed. Pull the teat down and snip it off cleanly at the line where the teat joins the udder. Use sharp, sterile scissors and be sure to swab the spot with iodine after, as well as before, the operation. There is seldom any bleeding IF YOU DO IT EARLY.

Remove those extra teats that are so unsightly.

CALVES ON PASTURE NEED GRAIN

Spring calves should be kept in the stable the first summer. Young calves may be turned outdoors for exercise, sunlight, and some green feed, but it is a mistake to expect calves under six months of age to obtain any considerable part of their feed from pasture.

Feed only nutritious feeds.

When calves have reached the age of six months to one year, good pasture will provide their roughage. In addition, they should be fed two or three pounds of grain per day. If the grass is highly nourishing, and not too ripe, home-grown grain will supplement the pasture very well. However, the fact that early grass contains much water should be kept in mind. Young calves will not be able to eat enough of it alone to make satisfactory growth.

FLY SPRAYS FOR CALVES

Calves on pasture should be protected from flies. DDT is no longer recommended as a fly spray for use on dairy cattle. Two new insecticides have been giving excellent results. These are methoxychlor and lindane. Both of these insecticides should be purchased in a form in which they may be mixed with water. Oil solutions are harmful to livestock.

Adequate shade should also be provided for young calves.

Provide shade for calves during the hot weather.

EXTRA VITAMINS MAY BE NEEDED

Under normal conditions, the young calf obtains the vitamins it needs from natural feeds, provided these are of good quality. Sometimes, however, the calf's feed falls below the desired level of needed vitamins. Calves may be continually scouring in spite of proper care. This would indicate a lack of Vitamin A or niacin (a B vitamin). They may also become unthrifty and develop enlarged joints (rickets). This indicates a lack of Vitamin D which helps the calf utilize calcium and phosphorous to produce sound bones.

Ensuring an ample supply of vitamins.

If such troubles occur with calves during the period when cows are off pasture, it may be well to add extra vitamins to the calf's diet to ensure an ample supply. One-half teaspoonful of high potency fish oil (cod-liver is the oil cheapest) added daily to the milk ration will ensure the calf an ample supply of both Vitamin A and Vitamin D. Concentrated vitamins are obtainable in capsule form to be given to calves daily following the first few days after birth. These capsule "courses" of vitamins ensure calves an ample supply of the most necessary known vitamins. Many dairymen feed these capsules to all calves raised just to be sure that they get a good start in life.

COMMON AILMENTS OF CALVES

Common Scours: This common ailment may be due to overfeeding, feeding from dirty pails, milk too rich in fat, lack of vitamin A and niacin, or the feeding of cold or sour milk to a calf used to warm and sweet milk.

When the calf shows symptoms of scours the feed should be reduced by one-half. Usually this will be sufficient to correct the disorder. If the trouble continues, a dose of castor oil (2 to 6 tablespoonfuls depending on the size of the calf) should be given, followed by careful feeding.

White Scours: The symptoms of "White Scours" are: acute diarrhea occurring 12 to 36 hours after birth, with foul-smelling, very free grey feces, sunken eyes, increasing dryness and harsh upright coat, progressive exhaustion, and death within 12 to 36 hours after onset.

If you have a calf with White Scours, call your veterinarian at once. He is qualified to treat your calf with Sulfaguanidine or Streptomycin, and he will inform you as to isolation of future cases and disinfection of your premises. White scours is a serious bacterial infection that is very contagious. It can cause serious loss to the calf crop if not checked promptly.

Ringworm: Caused by a fungus which forms ring-like spots on the skin. The affected parts should be scrubbed with soap and water or softened with oil. Iodine is then applied. Iodine mixed with vaseline or sulphur and lard rubbed on the affected parts is also effective. One thorough treatment usually clears up the ailment.

Warts: They are unsightly and will usually disappear after a daily application of castor oil over a three-day period.

Lice: Calves badly infested with lice will not make satisfactory gains. Cows infested with lice give less milk and lose flesh rapidly. A dairyman will be well rewarded to plan a campaign against lice. For a control program to be effective, all animals in the stable must be given a thorough treatment. A dust, consisting of very fine sulphur and 5%

Rotenone is effective against lice common to Manitoba. Warble fly powder is very effective against lice.

Louse powder is best applied dry when the lice first appear. Treat a second time in 12 to 14 days. If necessary treat a third time, 17 to 21 days after the first treatment. Make a thorough application of the dust covering all parts of the animal where lice are present.

CUD INNOCULATION

At birth, the calf's rumen is undeveloped. Development of this organ commences as soon as the calf starts to eat roughage feeds. The rumen acts as a fermentation vat and depends on its bacterial flora for the breakdown of the coarser cellulose parts of the roughage feeds.

Occasionally these cellulose splitting bacteria do not multiply sufficiently in the rumen of the calf to completely break down the cellulose of the roughage. In this case, the roughage apparently lies in the rumen and proper digestion does not occur. Calves suffering from this ailment do not ruminate, they may scour, they do not grow well, they have poor appetites, their coats are harsh and the hair is upright.

Calves that appear to be just "poor doers" with the above symptoms often respond miraculously to a cud innoculation. Cud innoculation is simply removing the cud from a cow and forcing the ailing calf to swallow same. By cud innoculation it is thought that the necessary desirable rumen bacteria are supplied in sufficient numbers so that they will quickly multiply and start the rumen functioning properly.

Calves that have received large doses of antibiotics for some ailment occasionally fail to ruminate and become "poor doers" after treatment. Here again cud innoculation of these calves may bring the desired results by replacing the rumen bacteria that have been destroyed by the antibiotics.

CALFHOOD VACCINATION FOR BANG'S DISEASE

Bang's Disease is a serious threat to the dairy industry of this Province. Many dairymen have cows on their farms that are positive to the blood test for Bang's Disease, yet these cows are producing live calves. These calves should be vaccinated against Bang's Disease. Have your local veterinarian **vaccinate** every heifer calf on your farm between the ages of 4 to 8 months. Vaccination is the best known method of immunizing calves (which will eventually be your whole herd) against Bang's Disease. Vaccinate **all** female calves and help eradicate this disease. At present the Manitoba Department of Agriculture will pay you $1.00 for every calf that you have vaccinated against Bang's.

These calf club members will make progressive dairymen

DAIRY CALF CLUBS

A few dairymen are born "naturals", but the majority of successful dairymen have had to learn the business step by step. Dairying can be learned best through practical experience on a good dairy farm. However, today a great deal of scientific work in the dairy field is being carried out by institutions and universities all over this continent. New and more practical methods of housing, pasture and herd management, hay making, disease controls ,etc. are being discovered. Subscribe to a reliable dairy publication and keep informed on the latest developments in dairying. Ask and help your Agricultural Representative to form a dairy calf club in your district. Teach your children to be good dairymen by developing in them an interest in the subject. Let them raise a calf of their own. Manitoba needs to develop many young, efficient dairymen to supply the essential dairy products for our ever increasing population.

The writer expresses appreciation to the Extension Service, College of Agriculture, University of Wisconsin for material used in the preparation of this publication, that was drawn from Circular 359, "Better Dairy Calves".

By authority of Hon. F. C. Bell, Minister of Agriculture and Immigration.
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